

REMARKS

Applicant requests reconsideration of the present application in view of the foregoing amendments and the discussion that follows. The status of the claims as of this response is as follows: Claims 33-35 are now pending in the above-mentioned patent application and stand rejected. Claims 33-35 have been amended herein. Claims 1-32 were previously canceled.

The Amendment

Claim 33 was amended to indicate that each of the individual chips of step (c) comprises an array of chemical compounds synthesized in step (b). Support therefor is in the Specification, for example, original Claim 33 and page 28, lines 23-34.

Claim 34 was amended in a manner similar to that for Claim 33.

Claim 35 was amended to indicate that the individual chips comprise an array of oligonucleotides formed in step (b). Support therefor is in the Specification, page 28, lines 16-19.

Withdrawn Objections/Rejections

The Office Action indicated that the rejection of Claims 33-34 under 35 U.S.C. 103(a) over Montgomery in view of Bassous was withdrawn in view of Applicant's amendments and/or arguments. All other rejections were maintained.

Rejection under 35 U.S.C. §103

Claim 35 was rejected under paragraph (a) of the above code section as being unpatentable over Montgomery, U.S. Patent No. 6,093,302 (Montgomery) in view of Bassous, *et al.*, U.S. Patent No. 4,047,184 (Bassous) and the statements in Applicant's specification at page 22, lines 21-29. In the Interview the undersigned and the Examiner discussed the typographical error in the first line of paragraph 5 of the Office Action, i.e., the wording "Claims 35 are" and also the reference to claims 33 and 34 subsequently in that paragraph. The Examiner indicated that much of the language in paragraph 5 was historical. Applicant wishes to point out that Applicant previously addressed these rejections by arguing that the combined teachings of the references do not disclose dicing a substrate into individual chips after the synthesis of arrays of chemical compounds has been carried out on the surface of the substrate.

In the Interview the Examiner indicated that Applicant's previous arguments were addressed in paragraph 6. The present Office Action stated in paragraph 6 that Applicant's arguments were not commensurate in scope with the claimed invention. The Office Action observed that the recited steps need not be carried out in the recited order.

In the Interview the undersigned indicated that Claims 33, and 34 contain language in step (c) that the single silicon substrate is severed into individual chips wherein each of said chips comprises an array. Thus, an order in the steps appears to be required by such claim language because the chips have the array synthesized on the surface. In any event the Examiner indicated that he would favorably consider additional language in the claims that specified an order of steps to show severing the chips after synthesis of the arrays. To that end Applicant submits the above amendments.

New Rejection under 35 U.S.C. §103

Claims 33-35 were rejected under paragraph (a) of the above code section as being unpatentable over Montgomery in view of Bassous and, if necessary, Kobylecki, *et al.*, U.S. Patent No. 6,153,375 (Kobylecki). The Office Action noted that Montgomery is silent as to the fabrication of more than one chip on a wafer and severing the wafer after an array of chemical compounds has been synthesized on the wafer. However, argues the Office Action, Bassous teaches the creation of an electrode array and states that more than one array can be made on a single substrate where each electrode array chip is separated by scribing and dicing. Furthermore, contends the Office Action referring to Applicant's previous response, Applicant has acknowledged that Bassous teaches severing the chip before the synthesis of the chemical compounds.

In Applicant's previous response, the statement referred to in the Office Action was prefaced by the language "Even if, for the sake of argument, the skilled artisan might be motivated to combine the teachings of the references, the combined teachings of." Applicant certainly was not acknowledging that the combined teachings taught severing prior to synthesis or even that there was sufficient motivation to combine the teachings of the references.

The Office Action contends that the combined teachings of the references not only teach dicing a substrate into individual chips prior to the synthesis of

compounds on its surface (which Applicant disputes above) but also that this is only a preferred embodiment leaving only one other possibility, namely, dicing after the synthesis of the chemical compounds. First of all, there is nothing in Montgomery or Bassous that would support this contention. Second, the Kobylecki reference, which Applicant will address in more detail below, appears to teach cutting paper into pieces multiple times during a synthetic process as a way to produce different products on its surface in specified locations. Accordingly, there appear to be many more alternatives than that identified in the Office Action. In any event, nothing in the combined teachings of Montgomery and Bassous suggests the methods of the present claims. There is nothing in the teachings of the references to indicate that severing a substrate after synthesis of arrays on its surface is a non-preferred embodiment as contended in the Office Action. Accordingly, *Merck & Co. v. Biocraft Laboratories* does not apply to the present circumstance.

The Office Action contends that deciding when to sever the chip is within routine experimentation because there are only two possible alternatives. This contention is addressed above. Applicant submits that to first carry out the synthesis of arrays of chemical compounds on a large substrate and sever that substrate into individual chips comprising arrays of chemical compounds requires the teaching of Applicant's own disclosure, which is impermissible. Furthermore, for the above reasons, the instant invention does not represent routine optimization as asserted in the Office Action.

The Office Action asserts that Kobylecki teaches that chips can be severed after an array of chemical compounds has been synthesized thereon wherein the reference discusses further subdividing the parent support after various stages of chemical synthesis. Kobylecki discusses a method of making a library of compounds. A plurality of individual reaction zones is marked on a laminar solid support and each reaction zone is charged with a starting material. The reaction zones are subdivided into at least two initial batches. Two different reagents are applied to the reaction zones, one each for each zone. All reaction zones are subjected to reaction conditions that promote reaction to completion. The reaction zones are further subdivided into at least two alternative batches. Two different reagents are applied to the reaction zones, one each for each zone. All reaction zones are subjected to reaction conditions that promote reaction to completion. The above steps are repeated as desired.

As mentioned above, Kobylecki teaches subdividing a support at various times during the synthesis of materials on the surface of such support, which is preferably paper. Kobylecki's approach facilitates characterization of individual materials on the support (column 2, line 58). The multiple steps of charging, subdividing, applying reagents and recording identity, and repetition of those steps as desired, allows synthesis of particular compounds at identified locations on a support.

The method of Kobylecki has little resemblance to that of the present invention or that of the references. Indeed, it is submitted that one skilled in the art would not consider the application of the method of Kobylecki to that of Montgomery and/or Bassous because Montgomery is concerned with electrochemical placement of monomers or nucleic acids at a specific location on a substrate and Bassous is concerned with a charge electrode array and combination of ink jet printing and method of manufacture. Montgomery's substrate contains at least one electrode that is preferably in contact with a buffering or scavenging solution to prevent chemical crosstalk between electrodes due to diffusion of electrochemically generated reagents. On the other hand, Kobylecki is not concerned at all with electrochemical synthesis involving substrates with electrodes. One might argue that determining how to apply the method of Kobylecki, which cuts a substrate multiple times during a synthesis, to that of Montgomery and/or Bassous, which both involve electrodes and accompanying structure for communication, would itself be inventive. In other words, applying the teaching of Kobylecki to that of Montgomery and/or Bassous would involve undue experimentation on the part of one skilled in the art. In any event Applicant submits that one skilled in the art would not be inclined to combine the teaching of Kobylecki with that of the other references for the above reasons. Accordingly, the present invention would not be obvious over Montgomery in view of Bassous and further in view of Kobylecki.

Conclusion

Claims 33-35 satisfy the requirements of 35 U.S.C. 103. Allowance of the above-identified patent application, it is submitted, is in order.

In the Interview the Examiner did mention that, at the very least, the finality of the rejection in the present Office Action might be withdrawn. In any event, Applicant

respectfully requests entry of the above amendments since they narrow the number of issues and place the claims in better form for consideration on appeal.

Respectfully submitted,

A handwritten signature in cursive script, reading "Theodore J. Leitereg".

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